IN THE CLAIMS

Please cancel claim 51, and substitute claims 1, 2, 4, 5, 8, 14, 17, 19, 28, 36, 39 and 55 with the following amended claims:

1. A system for detecting a signal, comprising:

a receiver for receiving a wideband signal to be processed;

a sub-band conversion module for converting the wideband signal into a plurality of sub-band signals to be processed;

a channelizing module for Fast Fourier Transform channelizing said plurality of sub-band signals into a respective plurality of complex spectral components;

a processing module for signal processing said plurality of complex spectral components, including a means for determining the presence of at least one signal of interest based on multiple time averaging analysis of said plurality of complex spectral components; and

a high speed data router as means for digitally routing respective plurality of module data between said modules.

2. A system for detecting a signal, comprising:

a receiver for receiving a wideband signal to be processed;

a sub-band conversion module for converting the wideband signal into a plurality of sub-band signals to be processed;

a channelizing module for Fast Fourier Transform channelizing said plurality of sub-band signals into a respective plurality of complex spectral components;

a processing module for signal processing said plurality of complex spectral components, including a means for determining the presence of at least one signal of interest based on multiple time averaging analysis of said plurality of complex spectral components; and

a high speed data router as means for digitally routing respective plurality of module data between said modules,

wherein said sub-band conversion module includes an analog-to-digital converter (ADC) for converting the wideband signal from the receiver, a plurality of digital down converters operatively connected to said ADC so as to each generate a sub-band of the digitally converted wideband signal from the ADC, and a data router for outputting the plurality of sub-band signals to said channelizing module.

4. A system for detecting a signal, comprising:

a receiver for receiving a wideband signal to be processed;

a sub-band conversion module for converting the wideband signal into a plurality of sub-band signals to be processed;

a channelizing module for Fast Fourier Transform channelizing said plurality of sub-band signals into a respective plurality of complex spectral components;

a processing module for signal processing said plurality of complex spectral components, including a means for determining the presence of at least one signal of interest based on multiple time averaging analysis of said plurality of complex spectral components; and

a high speed data router as means for digitally routing respective plurality of module data between said modules,

wherein said processing module includes a plurality of channel processors operatively connected to said data router so as to receive corresponding ones of said plurality of complex spectral components, each of said channel processors being formed so as to determine the presence of signal activity and perform demodulation of at least one signal of interest within the corresponding complex spectral component thereof.

5. A system according to claim 3, wherein said data from sub-band data stream and FFT channelizers are operatively connected to subsequent processing modules by the high speed data router for connecting said plurality of complex data streams to said processing modules.

8. A system for detecting a signal, comprising:

a receiver for receiving a wideband signal to be processed;

a sub-band conversion module for converting the wideband signal into a plurality of sub-band signals to be processed;

a channelizing module for Fast Fourier Transform channelizing said plurality of sub-band signals into a respective plurality of complex spectral components;

a processing module for signal processing said plurality of complex spectral components, including a means for determining the presence of at least one signal of interest based on multiple time averaging analysis of said plurality of complex spectral components; and

a high speed data router as means for digitally routing respective plurality of module data between said modules,

wherein said channelizing module includes a plurality of Fast Fourier Transform (FFT) channelizers operatively connected to receive corresponding ones of said plurality of sub-band signals and thereby generate a corresponding plurality of the complex spectral components, and a data router port for outputting said plurality of complex spectral components to said processing module, and

wherein each of said plurality of Fast Fourier Transform (FFT) channelizers includes means for hyperchannelizing the corresponding one of said plurality of sub-band signals into hyperchannelized signals each with a bandwidth at least 30% narrower than a bandwidth of said at least one signal of interest in generating said corresponding complex spectral components.

14. A method according to claim 11, wherein said step of determining the presence of at least one subset of adjacent spectral components includes storing said complex spectral components, conducting spectral filter convolution of said complex spectral components, converting said complex spectral components to real spectral components, and generating spectral activity parameter data on said real spectral components.

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17. A method according to claim 14, wherein said step of generating spectral parameter data includes generating spectral magnitude running averages and delayed running averages on said real spectral components.

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19. A method according to claim 17, wherein said step of Fast Fourier Transform (FFT) channelizing processes said plurality of sub-band signals via a corresponding plurality of FFT channels including hyperchannelizing said plurality of sub-band signals so as to generate complex spectral components with bandwidths narrower than a signal-of-interest bandwidth.

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28. A method for demodulating and recognizing a complex spectral signal of interest, comprising the steps of:

accessing said complex spectral signal to be processed stored in a buffer memory;

synthesis filtering of said complex spectral signal so as to generate a complex time domain signal based on said complex spectral signal;

demodulating said complex time domain signal;

conducting further processing of said demodulated signal to determine further signal parameters;

comparing said signal parameters to one or more predetermined signals of interest parameters and computing a weighted score based on parameter matches from said comparing; and

thresholding said score of said parameter matches between said one or more predetermined signal parameters and said demodulated signal parameters, and outputting respective signal of interest scores above threshold as indication of signal of interest recognition.

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36. A system for direction finding of a signal, comprising:

a plurality of wideband receivers for receiving input data from a plurality of wideband sensor sources, each of said receivers having a corresponding sensor or antenna source spatially separated from the corresponding sensors or antennas of other receivers;

a sub-band decimation module for each respective receiver, for decimating the plurality of wideband sensor sources into a plurality of sub-band data streams to be processed;

a channelizing module for Fast Fourier Transform channelizing said plurality of sub-band data streams from said plurality of sensor sources into a respective plurality of complex spectral component streams;

a processing module for signal processing said first sensor source plurality of complex spectral component streams, including a means for determining the presence of at least one signal of interest based on multiple spectral magnitude running averages and analysis of said plurality of complex spectral component streams;

a direction finding module for determining an angle-of-arrival of the at least one signal of interest based on the analysis of said processing module and said sensor source plurality of complex spectral component streams; and

- a high speed data router for digitally routing respective data between said sub-band decimation, channelizing, processing and direction finding modules.

39. A system according to claim 36, wherein said plurality of complex data streams output from the channelizing module are operatively connected to subsequent modules by a high speed data router.

55. A method according to claim 49, wherein said step of FFT processing said plurality of sub-band signals includes hyperchannelizing said plurality of sub-band signals so as to generate a plurality of complex spectral component streams with bandwidths narrower than a signal-of-interest bandwidth.

IN THE DRAWINGS:

Please enter the attached corrected drawings Figs. 1-11, in which margins and font sizes are being corrected, to replace Figs. 1-11 as originally filed. A Letter to Draftsperson is also submitted herewith.